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मानक

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IS 7621 (2000): High-lift Rider Trucks - Overhead Guards and Testing [TED 22: Transport Tractors and Trailers]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

हाई लिफ्ट राइडर ट्रक — शिरोपरि गार्ड —
विशिष्ट और परीक्षण

(पहला पुनरीक्षण)

Indian Standard

HIGH-LIFT RIDER TRUCKS — OVERHEAD
GUARDS — SPECIFICATION AND TESTING

(*First Revision*)

ICS 53.060.1

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BUREAU OF INDIAN STANDARDS

MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

NATIONAL FOREWORD

This Indian Standard (First Revision) which is identical with ISO 6055 : 1997 'High-lift rider trucks — Overhead guards — Specification and testing' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of the Industrial Trucks Sectional Committee and approval of Transport Engineering Division Council.

The original standard was published in 1974, which was based on ISO/DIS 6055 which had been now a published ISO standard. In this revised version, various aspects are covered, such as simplified figure indicating satisfactory protection by the overhead guard; description of test object during dynamic test.

The text of ISO standard has been approved as suitable for publication as Indian Standard without deviations. In the adopted standard certain conventions are, however, not identical to those used in Indian Standards. Attention is drawn especially to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a full point (.) as the decimal marker.

In this adopted standard, reference appears to an International Standard for which Indian Standard also exists. The corresponding Indian Standard which is to be substituted in its place is listed below along with its degree of equivalence for the edition indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 5353 : 1995	IS 11113 : 1999 Earth-moving machinery, and tractors and machinery for agriculture and forestry —Seat index point (<i>second revision</i>)	Identical

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

HIGH-LIFT RIDER TRUCKS — OVERHEAD GUARDS — SPECIFICATION AND TESTING

(First Revision)

1 Scope

This International Standard specifies the requirements and test methods for overhead guards for any type of high-lift rider truck with a lift height exceeding 1 800 mm.

It does not apply to straddle carriers.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5353:1995, *Earthmoving machinery, and tractors and machinery for agriculture and forestry — Seat index point.*

3 Design features

3.1 General

3.1.1 The overhead guard shall extend over the operator when he/she is in the operating place, operating the controls as provided by the truck manufacturer. For overhead guards fixed to the mast, this also applies when the mast is inclined.

The control levers (in their neutral position), any unprotected pedals, feet and the steering wheel may project in the direction of the mast up to a maximum distance of 150 mm beyond the vertical projection of the outline of the overhead guard onto a horizontal plane (see figure 1). No account is taken of the parking brake in its 'off' position.

Protection of the operator's legs and feet is regarded as satisfactory if the distance, vertically projected onto a horizontal plane, between the front of the overhead guard and the rear of the forward structure of the truck chassis providing the protection, does not exceed 150 mm (see figure 1).

3.1.2 Failure of the tilting mechanism shall not, directly or indirectly, cause the operator to be in danger because of the overhead guard.

Dimensions in millimetres

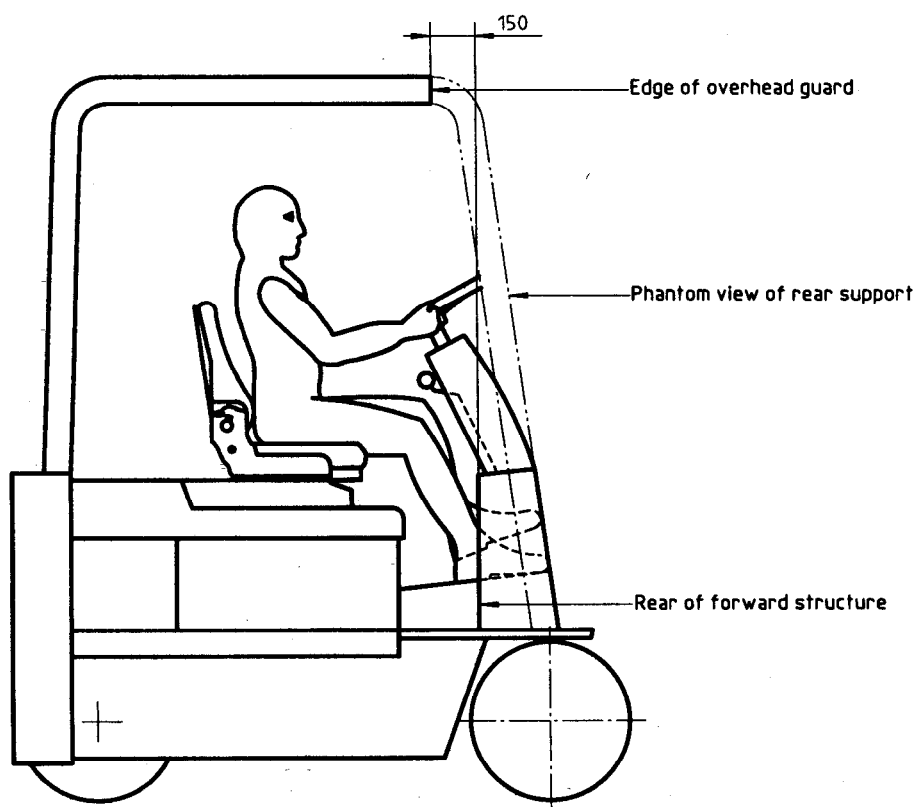


Figure 1 — Satisfactory protection by the overhead guard

3.2 Dimensions

3.2.1 The guard shall be constructed in a manner that does not interfere with good visibility.

3.2.2 Openings in the top of the overhead guard shall not exceed 150 mm in one of the two dimensions; i.e. width or length.

3.2.3 For high-lift trucks on which the operator is seated, a vertical clearance of at least 1 000 mm shall be maintained from the point of maximum depression of the seat under an operator who has a mass of 90 kg to the underside of the section of the guard under which the operator's head is located during normal truck operation. If provided, any vertical seat adjustment shall be set at the mean value.

3.2.4 For high-lift rider trucks on which the operator stands, a vertical clearance of at least 1 880 mm shall be maintained from the platform where the operator stands to the underside of the section of the guard under which the operator's head is located during normal truck operation.

3.2.5 When requested by the user, the manufacturer may reduce the normal overall guard height and the vertical clearance for the operator's head under the guard to permit operation of the truck with an overhead guard in areas where the overhead clearance limits the overall height of the truck.

4 Tests

4.1 General

4.1.1 A static and dynamic type test shall be carried out on a guard fitted to a truck of the type and rated capacity for which it has been designed. Alternatively, the guard may be mounted on a test chassis provided that the mounting is the same as that on the truck for which it is designed.

On order-picking trucks, the static test specified in 4.2 may be waived if a device such as an elevating arresting device is fitted on top of the overhead guard or on the roof of the cabin. On hydraulic lifting mechanisms, the pressure limiter may be used for this purpose if the overhead guard is of an adequate strength.

4.1.2 Using the same overhead guard and mounting, the static test in accordance with 4.2 shall be conducted first, followed by the dynamic test in accordance with 4.3.

4.2 Static test

4.2.1 Principle

To determine that the underlying strength of the overhead guard is adequate.

4.2.2 Test load

The test load shall be uniformly distributed on the top of the overhead guard. The mass of the load is specified in table 1 in relation to the rated capacity of the truck.

4.2.3 Procedure

The overhead guard shall be loaded with the test load for at least 1 min.

Table 1 — Static test loads

Values in kilograms

Rated capacity, Q	Test load
$Q \leq 2\,000$	$2Q$
$2\,000 < Q \leq 5\,000$	$2\,000 + Q$
$5\,000 < Q \leq 10\,000$	$4\,500 + Q/2$
$Q > 10\,000$	9 500

4.3 Dynamic test

4.3.1 Principle

To determine the resistance to permanent deflection of the portion of the overhead guard under which the operator sits or stands.

NOTE 1 In the case of overhead guards fitted to trucks of special design, other means, such as computation or prior test results, may be used to determine compliance with the requirements.

4.3.2 General

The overhead guard and its mountings shall be capable of withstanding the impact of the test object specified in 4.3.3 as applied under the conditions specified in 4.3.4.

4.3.3 Test object

The test object shall be a mass of 45 kg having a square striking face with a side dimension of 300 mm. The striking face shall be of oak wood or material of similar density, at least 50 mm thick. The corners and edges shall be radiused to 10 mm to 15 mm.

4.3.4 Procedure

The test object shall be positioned to drop in free fall with the striking face approximately parallel to the top of the overhead guard, so as not to strike with a corner or edge. Drop the test object 10 times from a height of 1,5 m.

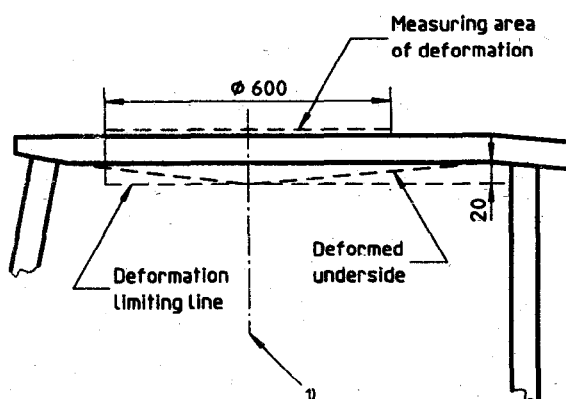
One of the drops shall be from a point with the centre of the test object vertically above the seat index point of the operator's seat in accordance with ISO 5353, with the seat at its midpoint of adjustment, or above the centre of the standing position. The other 9 drops shall be made from points with the centre of the test object randomly spaced on a 600 mm diameter circle, the centre of which is vertically above the seat index point of the operator's seat at its midpoint of adjustment or above the centre of the standing position.

NOTE 2 It is recognized that in some positions a portion of the test object may overlap the edge of the overhead guard when striking.

4.4 Requirements (see figures 2 and 3)

After both tests the guard shall not show fracture, separation of parts or permanent vertical deformation exceeding 20 mm, measured on the underside of the guard within a 600 mm diameter circle whose centre is vertically above the centre point of the operator's seat in its midpoint of adjustment or standing position. Failure during the dynamic test of material fitted across the openings permitted in 3.2.2 (such as wire mesh cloth, toughened glass, transparent panel, etc.) shall be ignored.

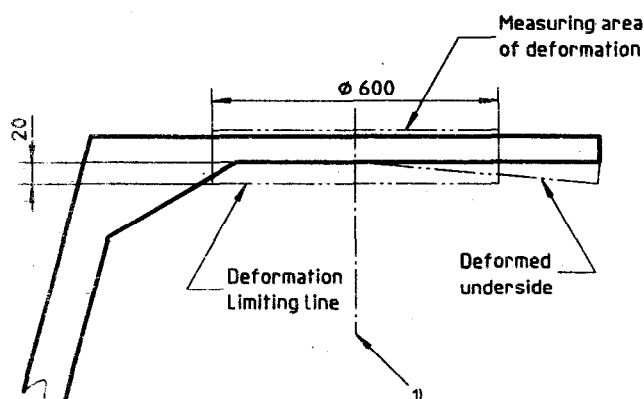
Dimensions in millimetres



1) Centre of the operator's standing position or seat index point with the seat at its midpoint of adjustment.

Figure 2 — Admissible deformation when the overhead guard is supported at all sides

Dimensions in millimetres



1) Centre of the operator's standing position or seat index point with the seat at its midpoint of adjustment.

Figure 3 — Admissible deformation when the overhead guard is supported at one side only

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This Indian Standard has been developed from Doc : No. TED 23 (074).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 323 01 31, 323 33 75, 323 94 02

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :

Telephone

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110002 { 323 76 17
323 38 41

Eastern : 1/14 C. I.T. Scheme VII M, V. I. P. Road, Kankurgachi
CALCUTTA 700054 { 337 84 99, 337 85 61
337 86 26, 337 91 20

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 { 60 38 43
60 20 25

Southern : C. I. T. Campus, IV Cross Road, CHENNAI 600113 { 235 02 16, 235 04 42
235 15 19, 235 23 15

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
MUMBAI 400093 { 832 92 95, 832 78 58
832 78 91, 832 78 92

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